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Foot-and-Mouth Disease: Vaccination Experiments (1938-'39) Carried Out at the Danish Experimental Station, Lindholm*

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At the beginning of June, 1938, Professor Waldmann and Dr. Köbe, of the German institute for foot-and-mouth disease on the island of Riems, announced that after long experimentation on cattle they had succeeded in producing an effective and harmless vaccine for foot-and-mouth disease. Regarding the constitution of the new vaccine it was stated that it consisted of an adsorption of virus on aluminium hydroxide, attenuated by certain chemical and physical methods. Nothing was stated as to the nature of these methods.

The new vaccine caused a great stir everywhere, not least in Denmark, where in the Press it was called "the Danish vaccine" and "Dr. Schmidt's vaccine." In Germany it was called "Riemser M.K.S.-Vakzine," and it was emphasised that this new weapon against foot-and-mouth disease had been forged by German scientists. The genesis of this vaccine is briefly as follows:—

For the express purpose of working on the active immunisation of cattle against foot-and-mouth disease, a co-operation was inaugurated in the autumn of 1934 between S. Schmidt and A. Hansen, of the State Serum Institute, Copenhagen, and H. O. Schmidt-Jensen, of Lindholm Island Experimental Station. This co-operation came about through the initiative of Dr. Schmidt, who wished to have the question examined as to whether his experience with aluminium hydroxide as an adsorbent for various forms of bacterial toxins and viruses could be utilised in foot-and-mouth disease research. These initial experiments on guinea-pigs were made on Lindholm and took about a year. During the following year Dr. Schmidt and his collaborators, through the medium of innumerable guinea-pig experiments, continued with their studies in connection with the foot-and-mouth disease virus-adsorbate, and among their important observations were the following: (1) In moderate doses, virus adsorbates containing 1 to 2 per cent. virus are generally harmless when injected subcutaneously and leave a strong immunity. (2) Virus attenuated with formol (by the British method) and then adsorbed on aluminium hydroxide, can set up an immunity lasting longer than pure formol-vaccine. (3) In principle the cultivated virus reacts in the same manner to aluminium hydroxide as lymph virus. (4) An effective trivalent vaccine can be produced. (5) By means of 48 hours' heat-application at 37° C., virus adsorbates can be attenuated to complete harmlessness, at the same time retaining a large part of their immunising effect. Even 14 days' heating at 37° C. does not entirely destroy the immunising effect.

This means that even in the year 1936 there was a Danish foot-and-mouth vaccine, of excellent effect—on guinea-pigs. The great problem now was whether the results achieved were applicable to cattle. In 1938 Waldmann and Köbe were able to answer the question in the absolute affirmative.

At the Lindholm Island Experimental Station during the past four years we have concentrated on two main objects: (1) Studying the nature of the virus adsorbates. (2) Producing culture virus by means of the culture method described by Frenkel. As far as conditions permitted it was natural for the Station to examine the vaccinating effect of the virus adsorbates on spontaneously susceptible animals. Experiments on cattle were made in 1936, and on cattle and pigs in 1937, in all cases with unattenuated adsorbates. After these cattle experiments no doubt was left that the guinea-pig results were transferable to cattle. As regards pigs, however, no effect was observed. As unattenuated virus adsorbates in some cases

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had proved to be risky to use, it was determined to make the 1938 vaccination tests with heat-treated adsorbates.

The experimental work of the past year was carried on in collaboration with J. Harbo, its object being to examinine the vaccinating effect of heat-treated virus adsorbates on cattle. As stated above, through his guinea-pig experiments Dr. Schmidt had established the fact that virus adsorbates can be attenuated to innocuity by heating at 37° C. for 48 hours, and that even 14 days' heating did not destroy the vaccinating effect entirely. This is an observation of vital importance, for it creates the possibility of making an effective and innocuous vaccine. Before our experiments could be started, the excellent German vaccine appeared. However, no details were available as to the manufacture of this vaccine, and therefore it was natural that we should continue our experiments along the lines planned in the hope of arriving at a useful vaccine formula.

Vaccination Experiments

The experiments extended over the period from July, 1938, to April, 1939, involving a total of 6,900 head of cattle. The first 18 animals were vaccinated in the Station's isolation boxes, all the others in practice during the great foot-and-mouth epizoötic, which provided Lindholm Station with an unprecedented chance to make cattle experiments on a large scale. The injections were made subcutaneously into the neck without antiseptic measures.

Briefly described, the vaccines were made in the following way: Virus material from the tongues of infected cows is finely ground and made up with redistilled water, centrifuged and passed through a Seitz-EK filter. The sterile virus suspension is then adsorbed on aluminium hydroxide, and the vaccine is produced from the adsorbate by heating in a water-bath at 37° C. Owing to incomplete equipment the first three vaccines were made without controlling the hydrogen-ion concentration; as might have been expected, the experiments proved that this control is of vital importance to the effect of the vaccine.

Prior to adsorption the aluminium hydroxide and virus suspension must be adjusted to a hydrogen-ion concentration of 7·65.

Initial Tests

For the initial tests on Lindholm the first vaccine used had been heated for 48 hours. This vaccine, however, proved to be dangerous to some of the animals. After that the adsorbate was heated for 72 hours, whereafter it proved to be harmless and to have an excellent vaccinating effect.

An after-test of the hydrogen-ion concentration in the adsorbate gave a very favourable value for the virus.

Tests in Practice

As from the middle of October we were given permission to make practical tests. For all these tests we employed vaccine that we considered was innocuous. The injections given were small, two in number (three in a single test). The first tests were made in Seeland, where at that time the epizoötic had become very widespread. A 72-hour vaccine was prepared from a new adsorbate. Nine herds (six large and three small, comprising 1,414 animals in all) were vaccinated, all on farms that were in great danger. Indeed, all the large herds contracted foot-and-mouth disease before sufficient immunity had been built up. Although the vaccine employed was of moderately good quality, its effect on the whole was quite good. A single instance will illustrate this: A farm of 480 animals was vaccinated twice at an interval of eleven days. Foot-and-mouth disease was found two days after the second vaccination, but altogether only 134 animals were attacked, 14 of them seriously, the others very slightly. We have evidence that the effect of the vaccine lasted only six to eight weeks. An after-test of the hydrogen-ion concentration of the vaccine showed it to be very unfavourable.

Thus the chances for these first tests in practice had been very poor, as most of the vaccinated herds acquired the disease. Consequently we directed the next tests to the island of Bornholm, where the epizoötic had been late in arriving. Unfortunately, the disease was found to have attacked several animals in the vaccination area a few days before vaccination was to begin, and naturally this affected the results.

A total of 35 herds, comprising over 800 animals in all, were vaccinated on Bornholm, three times at intervals of 14 days, the first time with a monovalent vaccine, the second and third times with divalent vaccines. The first had a very unfavourable hydrogen-ion concentration and was of moderate quality, whereas the last two were made under careful control. Between the first and the second vaccinations five of the herds contracted the disease, and five more between the second and the third. The latter five cases were very mild, only a single animal in each herd being affected slightly. The last vaccination was performed in the middle of January. No case of foot-and-mouth disease has since occurred in the other 25 herds, although during the first months of the year the entire district was permeated with the disease, so that transmission of infection was inevitable. A month after the last vaccination we bought four cows from this group of herds, and these were tested for immunity at the Lindholm Station. They were exposed to severe infection from both Type "O" and Type "A," being quartered in the inoculation byre at Lindholm, the byre most severely

infected with virus, at any rate north of Riems Island. There was no reaction to this test. Further examination proved a high degree of immunity in them all.

Our final tests in practice were made in two areas in Jutland. In the region round Agerskov and Toftlund there were a number of herds which had escaped the disease when it passed over the country that autumn. Among these herds there were sporadic cases of foot-and-mouth disease last spring. In the early part of March 168 herds, having a total of 2,595 head of cattle, were vaccinated, a divalent vaccine being used. About ten days after vaccination the disease was found to have attacked a herd of five animals in Toftlund; its course was benign. About six weeks after the first vaccination the 167 herds were revaccinated. Ten days later the disease broke out among the pigs in a herd of 26 vaccinated animals; none of those vaccinated were affected. Up to the present time there has been no case of foot-and-mouth disease in the remaining 166 herds. One farmer at Agerskov lost interest in our experiments; we were turned away when we arrived to vaccinate his herd. He was duly punished, for his herd was attacked by the disease some time later.

At the close of March we vaccinated 80 herds, totalling 2,067 head of cattle, in the region round about Höjer. These herds had all had the disease in 1938, and therefore they were vaccinated with a monovalent vaccine of Type "A." The second vaccination was performed a month later. There has been no foot-and-mouth disease in any of these herds since then.

The herds vaccinated in Jutland have not been exposed to any great risk of infection, so that the tests do not indicate much about their resistance against infection in practice. However, there is reason for assuming that they were immune for some months, as the vaccines employed were good and well controlled. The tests show that the vaccines may be regarded as being harmless, as of 4,662 animals, only five, and these all in the same herd, contracted the disease. This one case must be explained as a spontaneous outbreak.

The Lindholm Vaccine

By means of this series of experiments we have gradually arrived at the stage where we can produce an innocuous and effective vaccine for foot-and-mouth disease. This vaccine is the natural result of the experimental work commenced at the Lindholm Experimental Station in the autumn of 1934, and, thanks to the great epizoötic, could be carried through this last year on an unprecedented scale.

Thus there are now two vaccines against foot-and-mouth disease, the Riems Vaccine and the Lindholm Vaccine. There is no essential difference between these vaccines, for they are both based on the principle indicated by Dr. Schmidt: adsorption of virus on aluminium hydroxide followed by attenuation. The Riems Vaccine is attenuated with formalin and heat-treated at 25° C. for 48 hours. The Lindholm Vaccine is attenuated by heating at 37° C. for 72 hours.

We attenuate at 37° C. because there had already been certain experiments made at this temperature. It is probable that a somewhat lower attenuation temperature would be better. Kept at + 2° C. an adsorbate is attenuated to complete innocuity in the course of eight to ten months, but it preserves excellent immunising effect beyond that time. This makes it possible to store large stocks of adsorbates which can quickly be converted into vaccine when required.

The tests showed that it is possible to vaccinate effectively with a virus dose of 24 cg. (12 cg. of Type "O" + 12 cg. of Type "A"), divided into two injections at an interval of from two to four weeks. This quantity of virus is contained in small, convenient quantities of vaccine; for example, the dose for fully grown cattle at the first and second vaccinations in Jutland was 5 c.c.

Put into practice, the result of our experiments means that Lindholm can produce divalent vaccine for more than 5,000,000 head of cattle per annum.

Cultivated Virus

In conclusion, a few remarks are made on the subject of artificially produced foot-and-mouth disease virus. This virus can be cultivated on a large scale in epithelial cells from the calf foetus. On Lindholm we have cultivated in this manner for several years, with varying success. In the autumn of 1938, after consultation with Dr. Albert Fischer, of the Carlsberg Foundation's Biological Institute, Copenhagen, we introduced various changes into the cultivation technique. These changes led to greatly improved results. Cultivation now proceeds in a very stable manner, and the virus produced is of high infectivity. Qualitatively it is quite equal to natural virus. Quantitatively there is a great difference, as cultivated virus is much less concentrated. This cultivated virus can be employed for making vaccine on exactly the same lines as natural virus and gives excellent immunity. However, if virus cultivating is to be of any real practical importance, it is necessary that the quantity of virus produced per calf foetus is larger than has hitherto been the case.

If this problem can be solved, and a sufficiently large number of calf foetuses are available, it will mean a great increase and cheapening of vaccine production.

The Ecological Approach to the Study of Animal Diseases in East Africa

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The only practicable way of teaching veterinary students about specific diseases is the current one: The name of the disease forms the heading to a subject that is divided into parts having such subheadings as History, Occurrence, Aetiology, Methods of Spread, Pathogenicity, Pathogenesis, Symptoms and Course, Pathological-anatomical Changes, Diagnosis, Differential Diagnosis, Prognosis, Treatment, Prevention and Eradication.

The very fact that a country possesses a veterinary college is a surety that certain diseases, extant elsewhere, will have been stamped out within its own bounds, and in consequence its veterinary students will have little or no opportunity of seeing such diseases. Other diseases, of course, have never required to be stamped out; differences of climate have always limited their spread. For one reason or another, then, the young graduate from a British college may obtain an appointment as Veterinary Officer in the Colonial Service and take up his duties in East Africa before he has seen one case of naturally contracted trypanosomiasis, East Coast fever, horse-sickness, heartwater, rinderpest, contagious bovine pleuro-pneumonia, rabies and many other less well-known diseases. It is a tribute to his teachers as much as to himself that this man usually builds quickly and successfully on a base of knowledge that is so largely theoretical. But the nature of the edifice varies with the builder, and I suggest that better results are obtained by the synthetically minded who, while studying each disease in detail, endeavour to see them not as separate problems but as parts of a greater one; that of disease as a whole.

Still more useful is the young officer who carries his synthesis further and considers diseases of domestic animals as inseparable from economics, and who realises that precise knowledge of a disease coupled with a sound understanding of local economics, may compel him, on occasions, deliberately and complacently to neglect its control. The officer who retains the text-book attitude of mind that a disease, wherever met and under whatever conditions, must of necessity be evil and be fought until it is eradicated, is not always the most helpful assistant to a director of veterinary services. Particularly is this so if the director has a small staff and has to look after the interests of the owners of millions of stock who themselves are ignorant of what constitutes their best interests and whose stock is scattered throughout a territory many times the size of England. I have known such officers declaim proudly that they were veterinarians, *not* animal husbandry experts. They were right when they said they were not animal husbandry experts, but I doubt if they were right in saying they were veterinarians. They might fairly claim the title of *medicus pecorum*, but so great a veterinary scholar as Leclainche would deny them the fuller title. He says " Le vétérinaire n'est pas seulement le médecin des animaux, le *Tierarzt*; il revendique aussi un rôle dans les domaines de l'hygiène humaine et de l'élevage." (*Histoire de la Médecine Vétérinaire*, 1936, p. 3.)

What is ecology? The word was hardly in use when I was an undergraduate. I heard it for almost the first time at a later period, when I was in South Africa; for the late Sir Arnold Theiler was among the first leaders of our profession to realise the importance of what Haeckel, in 1869, defined as the " relation of the animal to its organic as well as its inorganic environment, particularly its friendly or hostile relations to those animals or plants with which it comes in contact."* Theiler saw that the domestic animals of Africa were not byre animals living under standardised conditions; they were veld animals; not to be considered merely in terms of work, food and skins, but to be considered also as important factors in determining whether the land on which they graze shall tend to improve or to deteriorate—whether their relations to the vegetation and soil with which they are in contact shall be friendly or hostile. The veterinarian in East Africa is rarely concerned with the saving of individual lives; his main task is the adjustment of the balance of those factors that, uncontrolled by science, tend always towards one or other of the two extremes of under- and over-stocking.

More than two-thirds of Tanganyika Territory are without domestic animals, other than poultry. Of the remaining 100,000 square miles, about two-thirds are understocked and one-third overstocked. The entire absence of stock throughout so large an area is explained by tsetse-fly infestation, and the unequal distribution of stock in the fly-free areas is determined largely by whether the vegetative cover is suitable to ticks and worms. In its turn, vegetative cover is the resultant of factors which include both climate and grazing; the former uncontrollable, the latter controllable. An area of moist climate

*This translation is from Chapman's " Animal Ecology," 1931, p. 2.

might have a close grass cover favourable to ticks and worms so that East Coast fever and strongylosis kept down the numbers of domestic animals. Then there might come along a *medicus pecorum*, as opposed to a true veterinarian, who with his text-book knowledge is able to state that, by dipping and dosing, the two diseases can be controlled. He inaugurates these measures, without at the same time taking into consideration the extreme reluctance of most African stock-owners to limit the numbers of their stock to the grazing capacity of available land. Result: banishment of the diseases, and replacement of rolling grassland by eroding bare land. Thus Oedipus slew the Sphinx but brought still greater misfortune to his native city. Elsewhere (*Emp. Jl. of Exp. Agric.*, 1937, v, 18, 143) I have defended the Veterinary Department of Tanganyika against the charge that by controlling disease they have accentuated the bad conditions of already overstocked areas. It is most important that the same defence be advanced by the veterinary departments of all new lands; but let the truth of the defence be based, not on impotence to control disease where this control is desired, but on judgment as to the measures of deliberate conscious control that are to the country's best advantage. The recognised Government policy in Tanganyika is "the application of measures of disease control to the extent that these are justified economically." In practice this means that though efforts are being made to suppress completely both rinderpest and pleuro-pneumonia, yet, even if funds were available, no compulsory dipping scheme would be applied throughout a large native area where East Coast fever is enzoötic, without prior knowledge that the resulting stock increase would not be allowed to pass the bounds of economic concentration.

In the field of tsetse research to which my own work is now almost confined, the basis of investigation is ecological. It may be said that Dr. John Phillips (now Professor of Botany, Witwatersrand University) made this basis secure, and Swynnerton built thereon so well—as set forth in his monumental work "The Tsetse Flies of East Africa" (1936: Vol. 84 of the Transactions of the Royal Entomological Society)—that the present Department of Tsetse Research became necessary. Swynnerton and his chief botanist, B. D. Burtt, were killed in an aeroplane accident last year; but their work goes on. Their department now consists of 15 or 16 scientists with nine or ten European assistants and very many native assistants. An adequate laboratory is being built at Shinyanga, and here, as in the forest itself where most of the work must be done, are being prosecuted those researches on tsetse in relation to their physico-biotic environment, from which may come the means for their effective control.

But—as in other branches of disease control—a poor result would be the release of land from tsetse for its subsequent destruction through overstocking. Hence at Shinyanga concurrently with these ecological studies, are proceeding others on such apparently unrelated subjects as range management and dam construction. Not only is the department interested in devising methods by which land at present infested by tsetse may be made fly-free; it is interested also in the complementary subject of good farming by which (*a*) land now fly-free may be kept fly-free, and (*b*) land released from fly infestation may be utilised economically, and not disgracefully exploited.

I do not think it is possible for teachers in the veterinary colleges of Great Britain to treat the subject of diseases other than statically, but they might warn their students that there exist conditions outside Europe under which the straightforward application of knowledge acquired from lectures may do more harm than good. The knowledge itself is invaluable, but its method of application must be guided by still further knowledge obtainable only in the new country itself.

EAST COAST FEVER OF CATTLE

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Some of the outbreaks of East Coast fever which occur in the Kenya Highlands cannot be accounted for in the usual way. The suggestion that certain species of game may play a part in these obscure outbreaks offers a possible explanation. So far as it is known no evidence has been forthcoming to indicate their possible implication.*

Opportunities to examine certain species of sick or dead game or material from them are by the nature of things extremely difficult to obtain. This is especially the case in forest country where there is more reason to suspect their being a factor in the occurrence of this disease among cattle. In a few cases there has been reason to suspect that there may be some connection between the occurrence of these outbreaks and the finding of sick or dead eland, especially where the possibility of rinderpest being responsible can be ruled out with a fairly high degree of certainty. As would be expected, carcases, when they are found, are almost

[*Theilerial infections have been previously recorded in hartebeest, eland, and other species of buck, including duiker. The relationship of these parasites to East Coast fever and other theilerial infections of cattle does not appear to have been investigated.—*Editor.*]

always in a condition which precludes a diagnosis. One case to be described strongly suggests that eland may be a factor in the spread of East Coast fever among cattle and worth recording in spite of its incompleteness.

Examination of material submitted from a dead eland revealed the presence of organisms indistinguishable from those of East Coast fever of cattle. Small piroplasms were very numerous in the red cells and bodies indistinguishable from Koch's Blue Bodies were present in spleen smears. The animal was described as being in poor condition, with sunken eyes and with a marked diarrhoea.

It is interesting to observe that the farm on which this eland was found and the surrounding country were free from any known East Coast fever infection. Four months later the disease broke out among cattle on this farm and at least two cases were confirmed. The surrounding country still appears to be free of infection. There is no ordinary explanation to account for the outbreak.

The fact that this eland died showing a condition very similar to, if not identical with, East Coast fever and later for the disease to break out among cattle without the usual factors to explain its introduction would appear to lend some weight to the view that it was probably affected with East Coast fever and introduced infection to cattle. There is at present no definite evidence but it is hoped that further cases may be detected and that transmission experiments to susceptible cattle can be carried out. If it can be shown that certain species of game, eland and buffalo in particular, are susceptible to East Coast fever it would appear as though the disease takes a milder course with a lower degree of susceptibility than is the case with cattle.

Poultry farmers and other stock-keepers have expressed some concern over the difficulty of obtaining supplies of cod liver oil for feeding purposes. It has now been announced that arrangements are being made by the Ministry of Food and the Agricultural Departments, in consultation with manufacturers and importers of cod liver oil, under which adequate supplies of cod liver oil of a satisfactory standard will be made available for agricultural purposes. It is hoped that substantial supplies of the oil will be available very shortly.

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"Indications of the returning popularity of the Clydesdale horse are given in the applications for licences for Clydesdale stallions made during 1939 under the Horse Breeding Act of 1918," states the *Scottish Farmer*. "During the year there were 464 applications, of which 459 were granted, leaving only five refusals. This is only half the number of refusals experienced in each of the previous two years, only a third of the number refused in 1936, and the lowest number declined in the past ten years. Significant too is the fact that at the recent meeting of the Clydesdale Horse Society 95 new members were elected."

REVIEWS

[An African Survey. By Lord Hailey, G.C.S.I., G.C.I.E. 1837 pp. Oxford University Press. 1938.]

In the subtitle this work is described as a study of problems arising in Africa south of the Sahara. It might be even better defined as a study of the problems of government in Africa. The idea of a comprehensive African survey came in the first place from General Smuts's 1929 Rhodes Lecture, and the work was finally carried out by Lord Hailey with assistance from the Carnegie Corporation and under the aegis of a powerful general committee, of which Lord Lothian is Chairman, and which includes such well-known scientists as Sir Richard Gregory, Professor Julian Huxley and Sir John Orr, in addition to equally distinguished names in the spheres of history, statesmanship, colonial administration, political economy, education, languages and finance.

The survey proper is divided into 23 chapters, which between them cover every main aspect of the life of the peoples of Africa in relation to their past, present and future environment: it is in fact an ecological study of the African peoples. Physiography, ethnography, philology, law, administration, taxation, labour, the land, agriculture, the natural and medical sciences, education, economic problems are all subjected to careful examination. When one proposes to deal with more than half the continent there is naturally a limit to the amount of material that can be included in any one volume, and the author must bring to his task discriminatory powers of an exceptionally high order. In the first place it is necessary to collect on the spot an enormous amount of material, which must next be assimilated and digested, and from which finally a selection must be made for publication. Those workers in Africa who had the privilege of meeting Lord Hailey during his tour of Africa—recollecting what a wealth of industry, enthusiasm and critical power he brought to his task, and well aware of the enormous quantities of miscellaneous information with which he was flooded by workers and enthusiasts in every sphere—will agree that this is no mere compilation and that the raw material has in fact been sorted, classified and finally built up into a well-balanced survey of African problems as a whole.

Turning to matters of veterinary interest, Animal Husbandry receives 14 pages in the general chapter on Agriculture, and the section is divided into subheads covering nutritional and breeding problems, animal disease, meat industry, hides and skins, wool and dairying. In the section on research brief reference is

made to the work on animal husbandry and animal diseases that is being performed by the various departments; and animal industry is further examined in a section on the improvement of animal husbandry (seven pages). In a final chapter on the future of African studies the essential independence of research activities is well brought out; one of the illustrations used is that of the veterinarian whose objective is the cure or prevention of animal disease, but who must at the same time concert measures to prevent overstocking with its attendant dangers of devegetation and soil erosion. The author fully recognises the imperative need for research in the guidance of African development—which he regards as being to-day in its most critical stage—and he presses strongly for an extension of the facilities for research into African problems. He points out that it is not feasible for the African colonies themselves to finance research on the scale required, and recommends the creation of a special colonial research fund administered by a committee of the Privy Council or the Economic Advisory Council of the Cabinet. He attaches great importance to the possibility of ensuring that the research institutes of Great Britain should take a larger share in African research as an alternative to expansion of the establishments in the colonies. The scheme for the co-ordination of local research activities in East Africa is approved, in so far as it is to be applied to the study of human and animal diseases which the author believes can profitably be centralised; but he expresses the view that research work on agricultural subjects or on such problems as stock-breeding can best be pursued in a number of institutes located in a variety of soil and climatic conditions.

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[Science in Africa. By E. B. Worthington, M.A., Ph.D. 746 pp. Oxford University Press. 1938.]

This is a complementary volume to "An African Survey" and the author is attempting to treat in greater detail the data on scientific work gathered by Lord Hailey. The subject matter ranges from surveys and mapping through the natural sciences to anthropology and covers most, if not all, of the field of the scientific worker in Africa. In a general chapter on research problems the author contrasts the Belgian and French systems of organising scientific work in the colonies with that of the British Colonial Administration. Under the latter the practice is to rely mainly on the employment of permanent research officers as members of the agricultural, medical, veterinary and other departments; whereas under the Belgian and French systems fewer permanent scientific officers are employed, but there is an extensive organisation under which scientific missions or surveys are undertaken by workers from home. The author rightly concludes that both systems have their own advantages (and one might add their disadvantages) but that a combination of both methods would be the ideal, and one not hard to achieve. He points out that few of the home universities are playing an important part in the development of Africa, but he fails in this particular account to mention the long association of the Liverpool University School of Tropical Medicine with the development of our West African possessions. In parenthesis one might remark that it has long been an enigma to colonial veterinary workers that veterinary colleges in Britain have taken so little active interest in colonial development. It is true that post-graduate courses were at one time available in which a certain amount of tropical veterinary pathology was taught and that to-day at Edinburgh a diploma course may be taken in Tropical Veterinary Medicine; but it is difficult to recall an occasion on which a scientific mission from one of these institutions visited one of our tropical possessions to carry out research or survey work. And as the author remarks, "There are already a number of first-class centres of research in Africa suitable for visiting workers, and at nearly all of these are specified problems of wide application of the type that the local staff have no time or opportunity to undertake."

Animal Industry is considered separately in a chapter running to 63 pages. There are numerous references to overstocking and soil erosion problems in the chapter on soil science, and other references to animal industry are to be found in the sections on pasture research, animal ecology, game, tsetse flies and insects in relation to disease. Speaking of veterinary science in Africa the author disposes of the argument that veterinary science has been cutting its own throat by controlling disease at too early a stage, and so aggravating the problems of overstocking and soil erosion. While admitting that disease may to some extent counteract overstocking, he rightly points out that disease is only one of many factors that control numbers—and by no means the most important; moreover, disease does not necessarily kill but may only weaken and impair efficiency. From another angle it can be claimed that disease is itself an important cause of overstocking if one gives due weight to the fact that large areas of Africa are rendered useless for stock by the prevalence of trypanosomiasis. On the other hand in the section on improvement of stock, he puts forward the remarkable suggestion that in areas where overstocking is a problem it might pay to breed animals for sterility: this presumably in preference to working for a change in the

natives' traditional and uncommercial attitude towards their livestock. In general the balance in dealing with the various sections of animal industry is well maintained, but if there is a criticism to offer it would be that milk as a product of animal industry and as one of the most important factors in the correction of the dietaries of native agricultural tribes, does not receive the prominence it merits. Due recognition is not given to the all-important part that can be played by the dairy cow in native agriculture in maintaining the fertility of cultivated lands or small holdings, and in raising the nutritional level of vegetarian peoples. Milk is the cheapest and most readily available source of animal protein and calcium for these people.

The specialist worker cannot be expected to gain a great deal, if anything, from a perusal of the sections that are devoted to his own particular subject, but if he reads the other sections with attention his perspective may be considerably enlarged and improved as a result. The book can with confidence be recommended to anyone who wishes to acquire a general insight into the activities and responsibilities of scientific workers in our African Empire, and it should prove particularly valuable to the young scientific worker during his first tour of service in an African colony. The subject material is well documented and there is an excellent index.

ARTHRITIS IN WILD MAMMALS

"Herbert Fox, of Pennsylvania, in the course of examination of 1,700 wild mammals has observed changes in the joints which correspond with chronic arthritis in man (*Trans. Amer. Phil. Soc.*, N.S., **31**, 75; 1939). This applies to truly wild animals as well as to menagerie specimens. The cases described seem to indicate that there is no apparent relationship between the incidence of arthritis and the systematic position, geographical distribution, habits or habitat of the mammals involved. On the whole the most conspicuous lesions occur among anthropoid apes, baboons, Felidae, Hyaenidae, Ursidae, Cervidae and a few others; whereas a number of groups, such as Canidae, Rodentia and Chiroptera, seem to be free from the disease, at any rate so far as shown by the material examined. Professor Fox makes an interesting suggestion, that the one character which separates arthritic mammals from non-arthritics is body size. This may be compounded of a large body upon slender supports (as in Bovidae), or stockily built body upon stouter supports (as in Felidae). Where the greatest stabilisation of the spinal column is demanded for the animal's locomotion there the greatest degree of spondylitis arises, and the localisation of lesions in the forelimbs of carnivorous mammals and the hind-limbs of herbivores may be associated with jolt-shock and locomotive power."—*Nature*, October 7th, 1939.

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It has been decided not to hold the Thoroughbred and Hunter Show next year.

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November 4th, 1939.

The Central Veterinary Research Institute for East Africa

It was recently announced in our pages that the governments concerned had agreed that a Central Veterinary Research Institute for East Africa should be set up at Kabete, Kenya Colony. The Colonial Office gave its approval. This is a project that has been under discussion for a number of years and now that it has finally been sanctioned the new institute should prove a great source of strength to the Colonial Veterinary Service and to the territories of East Africa in particular.

It must be realised that for agreement on the desirability of this new development all the governments concerned have unselfishly worked for the common good and that to achieve this end some may have felt that it involved not a little sacrifice of local aspirations. Actually there is little fear that the extension of one Colonial veterinary research institute will hinder in any way the development of the institutes and laboratories of any other individual territory; problems special to each require local study and each will be able to contribute its share to work done at the central institute.

It is obvious that sufficient funds could never be available for the development of large institutes in each territory and the result of multiple but inadequate laboratory services could only be failure to achieve results which otherwise might reasonably be expected from a well endowed and adequately staffed institution.

An outline of the scheme under which the new centre will function is given elsewhere in this issue. The tentative programme to be followed was drawn up by the Standing Veterinary Research Committee appointed for the purpose, the representatives consisting of the Directors of Veterinary Services and the Senior Veterinary Research Officers of Kenya, Tanganyika and Uganda and the Chief Veterinary Officer, Nyasaland, and it was passed by the Conference of East African Governors. As will be seen from the details given on page 1327 the programme covers subjects of paramount importance to the prosperity

of the territories concerned and to other countries as well. This programme is, of course, additional to that already being dealt with by the Kabete Laboratory.

The special staff of the new institute will consist of one research worker with special qualifications for fundamental research on viruses, one general veterinary research worker, one biochemist, one zoologist and one protozoologist. The salaries will be on a scale of £500 rising to £1,000 p.a.; commencing salaries to depend upon qualifications.

Our colleagues in East Africa are to be congratulated on the achievement of an important development in colonial veterinary work. The actual completion of a project of this nature owes its success to the industry of a very large number of people: for success in such a venture the confidence of the governments in their veterinary staffs is essential and even the less senior officers doing their jobs conscientiously and efficiently contribute their share by proving that veterinary services are worth while. The heads of the East African territories concerned all deserve the thanks of the profession and last, but not least, acknowledgment must be made to Mr. R. Daubney, Director of Veterinary Services, Kenya, for the able way in which he has worked for and supported the whole project from the beginning. The new institute is under his charge and great expectations are held that veterinary science will be enriched as the result of the latest development in veterinary research.

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Development in Africa

AFRICAN affairs have been much to the fore in recent years and it has been universally acknowledged that progress has been retarded because much essential information required for the organisation of projects in almost all phases of Governmental and industrial activity in Africa has been unobtainable. A move was made some years ago to remedy this state of affairs and steps were taken for an African Research Survey, under the auspices of the Royal Institute of International Affairs, and it was placed in charge of Lord Hailey, a very distinguished officer of the Indian Civil Service and lately Governor of the United Provinces.

India, with its older associations with British development, is well organised in connection with surveys and reports on all manner of subjects and the type of information so obviously lacking concerning African affairs has all along been on record for India.

The report on the African Survey has now been published and it is a most important volume. Along with the report and complementary to it is a companion volume, "Science in Africa," by Dr. E. B. Worthington, and this gives more detailed accounts of the scientific aspects of the matters brought out in the Survey. These two volumes are reviewed elsewhere in this number: their issue is a landmark in British Colonial development and the information they contain should be at the disposal of all interested in this subject which is of such moment to the British Empire.

CLINICAL COMMUNICATION

Strangulated Inguinal Hernia in the Foal

W. F. KOCHAN, M.R.C.V.S.
SPILSBY

On May 19th, this year, when in Nottingham, I was called to a twelve-hour old Shire colt foal. It had apparently been quite normal at birth, but two hours after showed signs of abdominal discomfort and a swelling became noticeable in the scrotal region.

The foal was already very ill, standing with its head at the knees, straining constantly, frequently trying to micturate, kicking at the abdomen, the penis remaining protruding from its sheath.

The swelling extended from the scrotum to the prepuce, the tip of which was very swollen. It was roughly circular, with a diameter of about 5 inches. The skin was a diffuse, reddish purple colour and heat, pain and oedema were marked.

Strangulated hernia was diagnosed and a poor prognosis given.

The owner desired an operation and four hours later, by which time all the symptoms were more acute and the swelling, more elliptical in shape, measured about 8 inches by 6 inches, the foal was cast and chloroformed, Cox's muzzle being used and an initial dose of 4 drachms chloroform given. Anaesthesia was complete in six minutes and was maintained by the periodic addition of 2 drachms.

The operation lasted two hours and 4 ounces of chloroform were necessary.

All cloths, saline packs and instruments were carried to the farm, sterile.

The primary incision was made over the swelling about 6 inches long and parallel to the dorsum penis. This exposed oedematous tissues

of about 1½ inches thickness, which formed a cavity in which lay two handsful or so of discoloured small intestine. There was no true hernial sac and there were a number of adhesions especially near the preputial orifice. The testicle was as yet undescended. The adhesions were broken by blunt dissection and gentle pressure from hot saline swabs and the intestines found to be extruding from the inguinal ring. To assist replacement a secondary incision was necessary over the inguinal region perpendicular to and half way along the primary.

After some considerable time had been spent in a vain attempt to retract the medial wall of the inguinal ring and replace the intestine, it was decided to enlarge the opening. Blunt-nosed scissors were inserted into the inguinal canal and an incision 1 inch long was made through the fibrous medial wall at its mid-point. Reduction was now comparatively easy.

Interrupted sutures of 4/20 day catgut in double strands were used to close the inguinal ring and the immediate depths. The gross amount of oedema made suturing rather difficult but was accomplished by occasionally using the fascia lata for anchorage. The primary and secondary incisions were treated as three separate wounds. Provision for drainage was left at the anterior extremity and the wound left exposed. There was no haemorrhage of any account.

One hour after the completion of the operation the foal was up, suckled the mare and voided faeces and urine.

Subsequent treatment consisted of nursing, restriction and the addition of a milk, egg and brandy mixture to the diet; 5 c.c. of "Soluseptasine" were given intramuscularly on the first four days. Progress was rapid and both mare and foal were allowed short intervals in the paddock on the third day.

On the fifth day the surface sutures burst and the serous discharge increased. Little pus was formed. The wound was now bathed repeatedly with a saline solution (1 handful of salt to 2 gallons of tepid water). In ten days all oedema had gone and the foal walked normally. Healing of the wounds was uneventful and when seen a fortnight ago (early in October) for docking, the foal looked in splendid condition.

The result has been highly satisfactory so far but it will be interesting to note whether the left testicle descends normally or if the operation has succeeded in making the colt a cryptorchid.

The Council of the National Pig Breeders' Association has decided to ask the Ministry of Agriculture to rescind its decision to discontinue for the period of the war the Premium Boar Scheme. In a resolution on the subject passed at a recent meeting the Council stated, "If the keeping of pigs by smallholders and cottagers is to be encouraged as the Minister of Agriculture has suggested, boars for public service, premium boars, are essential."

ABSTRACTS

[Some Causes of Sterility in Cows. Schlotthauer, C. F. (1939.) *J. Amer. Vet. Med. Ass.* **95.** 33-37.]

In this paper the author discusses briefly the diagnosis and treatment of some of the more common causes of sterility in cows. He regards contagious abortion as the most important primary disease causing sterility in cattle. Cervicitis, in the author's experience, is the most frequent specific lesion of the genital tract, either occurring as a primary disease or associated with metritis, salpingitis, or vaginitis. Before a diagnosis of individual cases is attempted, the breeding history of the herd should always be considered, as this frequently gives a valuable clue to the cause of the sterility. Examination of the genital tract is carried out in the usual way by vaginal and rectal manipulation, bearing in mind the lesions in the various organs that are likely to be met with.

Primary cervicitis, if severe, is treated by irrigation of the cervix and uterus with dilute iodine solution, repeated once weekly where necessary. Less severe cervicitis is dealt with by retraction of the cervix followed by swabbing of the cervical canal with Lugol's solution, tincture of metaphen or 2 per cent. solution of mercurochrome. All protruding, inflamed cervical folds should be excised, using curved serrated scissors. If retraction of the cervix is not possible 2 to 5 c.c. of iodine solution are injected directly into the cervical canal.

Treatment for endometritis consists in the irrigation of the uterus with a warm aqueous solution of iodine. It is stated that treatment is always more successful during the summer months when the cows are permitted to graze and exercise liberally and are able to obtain adequate supplies of vitamins in the green food.

Cases of pyometra accompanied by atony of the uterus, are first treated by injection of oestrone, followed in 24 to 72 hours by the intravenous administration of 5 to 10 c.c. of pituitary extract (presumably posterior pituitary extract). This usually causes prompt and complete emptying of the uterus. When the uterus remains in a contracted state it may be irrigated as for endometritis.

Persistent or cystic corpora lutea are expressed or ruptured through either the rectal or vaginal walls. To prevent haemorrhage from the ovary it is held tightly two to three minutes following expression of the corpus luteum. Follicular cysts are treated by rupture and administration of an extract of corpus luteum (presumably corpus luteum hormone).

N. J. S.

[Superficial Sensitivity in the Head Region of the Horse. Grau, H. (1939.) *Arch. Tierheilk.* **74.** 273-279. (3 figs.).]

An instructive and comprehensive description of the sensitive nerve supply to the skin and mucous membranes of the head of the horse, which, although chiefly of academic value, contains many points worthy of application.

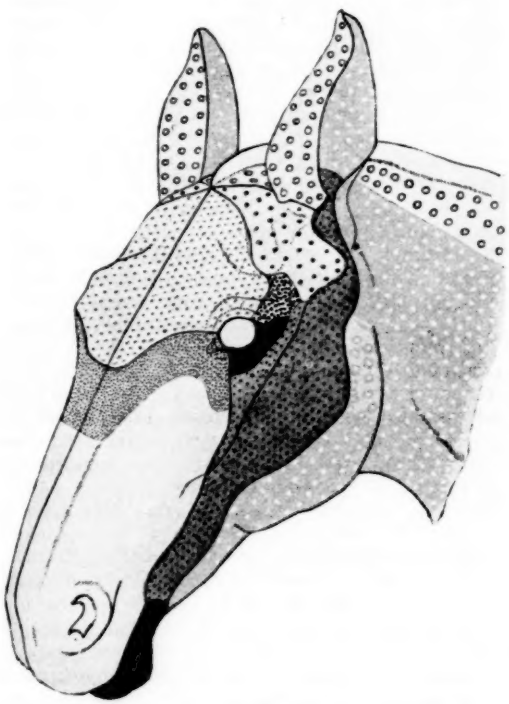

Fig. 1. The Nerve Supply to the Skin of the Head of the Horse.

1. Dorsal division of the 1st cervical nerve.
2. Dorsal division of the 2nd cervical nerve.
3. Ventral divisions of the cervical. (In the head region, chiefly the 2nd cervical.)
4. Lacrimal nerve (ophthalmic division of 5th cranial.)
5. Zygomaticotemporalis branch of lacrimal nerve.
6. Frontal or supra orbital nerve (ophthalmic division of 5th cranial.)
7. Infra trochlear nerve (ophthalmic division of 5th cranial).
8. Infra orbital nerve (maxillary division of 5th cranial.)
9. Zygomatic nerve (maxillary division of 5th cranial.)
10. Superficial temporal nerve (mandibular division of 5th cranial.)
11. Mental nerve (mandibular division of 5th cranial.)

The chief nerves concerned are the fifth, ninth and tenth cranial and the first and second cervical. The two cervical nerves supply an area of skin as far forwards as a line extending from the end of the parietal crest to the base of the ear, then downwards across the masseter roughly parallel with, and 8 to 12 cm. distant from, the edge of the mandible, to the level of the commissure of the lips. This area includes the parotid region and external ear, although part of the inside of the concha is supplied by the superficial temporal. The auricular branch of the vagus ramifies in the integument which lines the external auditory meatus. [The author suggests that this latter branch may be associated with the secretion of cerumen.] In front of this line the whole of the face is supplied by branches of the fifth cranial (see Fig. 1).

The various branches distributed around the eyelid supply the corresponding area of conjunctiva deep to them, but the cornea is innervated by filaments from the ciliary ganglion.

The supply to the mucous membranes can be divided into more distinct areas, except the region of the pharynx and guttural pouch. The author is of the opinion that the sensitive nerves to the mucous membranes of this region are derived partly from the ninth and partly from the tenth cranials. The anterior limit of supply of the ninth nerve is the base of the tongue as far forwards as the circumvallate papillae; its tympanic branch supplies the eustachian tube and tympanum.

The author emphasises that it is impossible to draw an accurate line of demarcation between the supply of two adjacent areas owing to the numerous anastomoses which occur between the nerves concerned. Also that the complex arrangement of plexuses and ganglia of this region, and their association with motor and sympathetic fibres, make it difficult to determine the exact nature of some of the small branches.

C. W. O.

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[Complement-Fixation Reaction in Rinderpest. IV.—Infection and the Reaction. Nakamura, J., and Wagatuma, S. (1937.) *J. Jap. Soc. Vet. Sci.* **16.** 314-331. Summary in English 40-42.]

Continuing investigations into complement fixation by extract of lymphatic gland of cattle infected with cattle plague in the presence of hyperimmune antiserum, the authors obtained 32 positive reactions with gland material from 34 typical cases of the disease. Out of 21 inoculated animals which gave atypical clinical reactions only six were negative to the complement fixation test, and in these animals no evidence of infection could be detected clinically.

The first appearance of antigenic activity of gland tissue occurred on the second day of fever, and the maximum activity was reached 48 to 72 hours after the rise of temperature. The activity began to decline after the febrile crisis and disappeared a few days after the temperature returned to normal. In one case of mild clinical reaction following double inoculation no complement fixation could be detected, and one sample of gland material sent in from the field failed to fix complement, though it proved infective on inoculation. U. F. R.

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[On Experimental Infection with Rinderpest Virus in the Rabbit. NAKAMURA, J., WAGATUMA, S., and FUKUSHO, K. (1938.) *J. Jap. Soc. Vet. Sci.* **17.** 185-204. English summary 25-30.]

The literature on the susceptibility of rabbits to cattle plague is reviewed, and attention is drawn to previous records of the infection of rabbits by inoculation with the cattle plague virus. The authors obtained infection of rabbits with six different strains of this virus, and in one case have carried the virus through 167 passages, without the strain losing its infectivity for cattle.

During the early passages in rabbits (three to ten) no marked reaction was produced, nor could distinctive lesions be detected in the inoculated animals. In later passages, however, a distinct temperature reaction, with a rise of 2° C. or more, occurred in all but a small percentage of cases. In the later passages also characteristic lesions were produced. These lesions are described as small greyish points in the Peyer's patches and lymphatic glands, which histological examination showed to be due to necrosis of lymph follicles.

It is claimed that passage of the virus through rabbits enhances its virulence for these animals, whilst decreasing it for cattle, so that, after the 100th passage, test calves often survived. After the 113th passage rabbits could be infected with such a small dose as 0·001 c.c. of virulent blood, whilst the minimum infective dose for calves rose to 0·1 c.c. to 1 c.c.

After a rabbit has recovered from the original infection the animal acquires a solid immunity, and a later virus inoculation fails to produce a febrile reaction, nor can the presence of virus in the blood be demonstrated by the subinoculation of a calf.

U. F. R.

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[Further Notes on Treatment of Trypanosomiasis, with Particular Reference to Use of Surfen C. HORNBY, H. E. (1938.) *Annual Rep. Vet. Dept. Tanganyika Territory, 1937.*]

Owing to the spread of tsetse fly into the neighbourhood of the Mpwapwa laboratory it became possible to test the value of treatment of cattle for trypanosomiasis on a large scale. Records are given of 35 animals treated with "Surfen C" intramuscularly, six animals treated intravenously with a Bayer preparation of "Surfen C" and thiourea, and five animals treated by both methods. The dose used of the "Surfen C" compound given intravenously was 0·06 grm. per hundredweight, or 0·3 grm. in about 30 c.c. of water for the average zebu animal. No deaths occurred after the use of this dose, but alarming symptoms of fainting, followed by respiratory and cardiac disturbance, might result.

It is concluded that in the great majority of cases one dose of "Surfen C" given intramuscularly or intravenously is curative in the case of bovine infection with *T. congolense*, *T. vivax* or *T. brucei*. Intramuscular injection may cause lameness with a resulting disability in grazing and watering, whilst intravenous injection may cause alarming symptoms, and if too big a dose is given, may even cause death. In *T. congolense* infection, the number of cases of relapse occurring after one injection of "Surfen C" was approximately the same as those occurring after a course of five injections of tartar emetic or antimosan (35 per cent.). Animals which relapse may recover when treatment is repeated, but some animals continue to relapse, and appear to be incurable.

U. F. R.

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[Foot-and-Mouth Disease in Deer. COHRS, P., and WEBER-SPRINGE. (1939.) *Deuts. tierärztl. Wschr.* **7.** 97-103.]

Full reports are given of three suspected cases of foot-and-mouth disease in wild deer. The presence of the virus was not demonstrated but no doubt is expressed as to the diagnosis being correct.

One case showed multiple erosions of the mucous membrane of the mouth and rumen, an ulcerous erosion near the interdigital cleft of one foot, patches of degenerative myocarditis on the right auricle, and an acute catarrhal gastroenteritis. The heart lesion was identical with that seen in calves. In another case claws had been shed from the feet. H. H. S.

PRESERVATIVES IN FOOD

The Minister of Health, after consultation with the Minister of Food, has made Regulations to amend the Public Health (Preservatives, etc., in Food) Regulations, 1925 to 1927.

The amending Regulations, which are entitled the "Public Health (Preservatives, etc., in Food) Amendment Regulations, 1939," provide that the direct addition of sodium or potassium nitrite to bacon, ham or cooked pickled meat shall not be prohibited but that the total amount of nitrites which may be contained in cooked pickled meat other than bacon and ham shall not exceed 200 parts per million, from whatever source derived.

ROYAL COLLEGE OF VETERINARY SURGEONS

Quarterly Meeting of Council

A Quarterly Meeting of Council of the Royal College of Veterinary Surgeons was held at 10, Red Lion Square, London, on the afternoon of Wednesday, September 27th, 1939.

Professor G. H. Wooldridge, F.R.C.V.S., President, occupied the Chair, and the following members were present: Professors J. B. Buxton, J. F. Craig, T. Dalling, Mr. H. W. Dawes, Major G. W. Dunkin, Messrs. G. H. Livesey, J. W. McIntosh, G. P. Male, Professor W. C. Miller, Lt.-Col. W. S. Mulvey, Mr. W. Nairn, Sir A. Olver, Mr. J. W. Procter, Lt.-Col. P. J. Simpson, Mr. A. Spicer, Col. G. K. Walker, Dr. W. R. Wooldridge and Professor J. G. Wright.

The minutes of the previous meeting were taken as read and signed as correct.

The SECRETARY reported that letters expressing regret at inability to attend the meeting had been received from the following: Colonel J. W. Brittlebank, Messrs. Dolan, Donnelly, Holroyd, Sir J. McFadyean, Messrs. A. Mackenzie, A. B. Mattinson, Professor O'Connor, Messrs. W. K. Townson and J. F. D. Tutt.

Obituary.—The REGISTRAR read the list of Fellows and Members of the College whose deaths had been recorded since the previous meeting.

The members stood while the list was being read.

The PRESIDENT: You will have observed in that sad list which we have just heard read the name of a member of the Council, Mr. Robert Simpson. I am sure that I am voicing the sentiments of all of you when I express the deep regret and great sense of loss which we of the profession, and those of us in this Council chamber especially, feel at the passing of Robert Simpson at a comparatively early age. He was not a member of the Council for a very long time, but during that time and latterly as Chairman of the Parliamentary Committee, he had shown by his grasp of affairs that he would have been of very great assistance indeed to the College, as he was during the time that he was with us. His personality was all that could be desired; his charming and lovable personality must, I am sure, have made itself felt to all of us. I am sure that we should like to pass a special vote of condolence with Mrs. Simpson in her great loss, and register our own sense of great loss at his passing also.

The vote was carried, the members standing in silence as a token of respect.

Admissions to Membership.—The SECRETARY read the list of members who had been admitted since the last Quarterly Meeting on the results of the final examinations held at the Veterinary Colleges of Dublin, Glasgow, Edinburgh, Liverpool and London.

Reports of Committees

Financial and General Purposes Committee.

The SECRETARY then read the following Report of the Finance and General Purposes Committee (Meeting held on September 27th):—

Chairman, and Vice-Chairman.—Mr. W. Nairn was appointed Chairman and Mr. G. H. Livesey Vice-Chairman of the Committee for the ensuing year.

Financial Statement.—The Treasurer submitted his financial statement for the quarter, showing a balance in hand of £681 11s. 1d., amount on deposit £2,000, and liabilities amounting to £141 3s. 2d.

The Treasurer's statement was adopted and he was ordered to pay the liabilities shown, together with cheques for current expenditure.

The question of the investment of the amount on deposit was left to the decision of the President, Chairman, and Treasurer.

Valuation of Pictures.—The Secretary reported that as directed he had arranged for the valuation of the portraits in the College building by Messrs. Norfolk and Prior, who had sent an expert valuer to examine the pictures. The total estimated value for insurance purposes was £2,040.

It was resolved, "That the portraits be insured for the value named, and that the valuation fee of £21 be paid."

Vacancies on Council.—Consideration was given to the question of filling the vacancies on the Council caused by the deaths of Sir F. Hobday and Mr. R. Simpson.

It was resolved to recommend:—

(*a*) That the two vacancies be filled by the election of Mr. H. W. Steele-Bodger and Dr. A. W. Whitehouse as Members of Council for the period ending at the next annual meeting.

(*b*) That Mr. Steele-Bodger be elected to the Parliamentary and Library Committees, and Dr. Whitehouse to the Examination and Parliamentary Committees.

War Emergency Plans.—The Secretary submitted a statement as to the action he had taken in consultation with the Executive Committee appointed at the April meeting for carrying on the work of the office. The current examination and membership records had been removed for safety to 30, Park Lane, Wembley, and part of the office staff was working there. Consideration was given to the question of protection of the remaining archives, the Library, the stained glass windows, and the portraits.

It was resolved:—

(*a*) "That the action taken in removing part of the office equipment and records to 30, Park Lane, Wembley, be approved, and that the additional cost of cleaning, lighting, heating, telephone services and other incidental expenses be refunded.

(*b*) "That the offer of Major Dunkin to store the Council Minute Books dating from 1844 and other records at Compton be accepted with gratitude.

(*c*) "That the question of removing the rest of the office staff and equipment to Wembley be left in the hands of the President, Chairman, and Treasurer."

Library.—It was resolved to recommend that the Library be closed for the time being.

Secretariat.—Consideration of this question was not proceeded with.

Mr. NAIRN (Chairman of the Committee) moved the reception and adoption of the Report.

Mr. LIVESEY seconded the motion.

The PRESIDENT: One important matter in the Report to which I should perhaps draw attention is with regard to the vacancies occurring by the deaths of Sir Frederick Hobday and Mr. Robert Simpson. It is recommended that these vacancies be filled by the election of Mr. Steele-Bodger and Dr. Whitehouse until the next Annual Meeting. If you accept this report, those vacancies will be duly filled in that way.

The report was approved and adopted.

Examination Committee.

The following report of the meeting of the Examination Committee held on September 27th was read.

Chairman, and Vice-Chairman.—Major Dunkin was re-elected Chairman and Mr. H. W. Dawes Vice-Chairman of the Committee for the ensuing year.

July Examinations.—Reports by the Chairman of Examiners and Delegates on the July Examinations were submitted and approved.

It was resolved:—

(*a*) "That the Secretary be instructed to express the thanks of the Council to those institutions which had assisted the Council in the conduct of the examinations.

(*b*) "That the Secretary be instructed in consultation with the President and Chairman, to communicate with the Principal of the Royal (Dick) Veterinary College and the External Examiners in regard to the Examination paper in Histology.

(*c*) "That the Chairman of Examiners for the Final Year be informed that the Committee do not approve of any change in the allocation of marks as between the Written and Oral Examinations.

(*d*) "That in regard to the granting of honours or credits, the attention of the Examiners be drawn to By-law 78."

Fellowship Examination.—The Report of the Examiners on a Thesis submitted by Mr. Roderick MacGregor on "The Domestic Buffalo" was submitted, recommending the award of the Fellowship Diploma without further examination.

It was resolved, "That the Diploma of Fellow be conferred on Mr. Roderick MacGregor."

Educational Certificates.—Educational Certificates No. 6422 to 6432, 6434 to 6522 were submitted and approved.

Exemptions and Concessions.—By-law 62.—It was resolved:—

(*a*) "That exemption under the provisions of By-law 62 be granted in the following cases: candidates Nos. 21 to 36, 39, 40 (*pro tanto* Chemistry and Physics).

(*b*) "That the Secretary be authorised to register exemptions granted to candidates who have passed the 1st B.V.Sc. Examination, Liverpool, as and when applications are received."

Mature Age Candidates.—It was resolved, "That, the certificates submitted by the following candidates being considered satisfactory, they be registered as eligible to enter upon the veterinary course: Nos. 6549 and 6550."

Four Years' Course Candidate.—An application for readmission to the course was received from Candidate No. 2974, he having failed at the Final Examination in December, 1928.

It was resolved, "That this candidate be admitted to the Final Examination after a further attendance of at least one term."

Examination Fees.—It was resolved, "That the examination fees of candidates Nos. 4857, 6119 and 6276 be held over to the next examination, and that the fee of Candidate No. 5534 be refunded."

D.V.S.M.—It was resolved, "That the application of Mr. F. S. Hart to be allowed to sit for re-examination without further attendance at a course be acceded to."

By-law 95.—Applications submitted by the Director of Recruitment, Colonial Veterinary Service, on behalf of candidates Nos. 37 and 38, holders of the degree of B.V.Sc. (Toronto) for admission to the Final Examination were considered.

It was resolved, "That these candidates be admitted to the Final Examination for the Diploma of M.R.C.V.S. under the provisions of By-law 95, the prescribed additional subject being Pathology and Bacteriology."

FitzWygram Prizes.—The Auditor's report was submitted showing that the following were the two candidates obtaining the highest number of marks: Taylor, D. W. B. (London), 1018; Pocock, Miss F. (London), 1,000.

It was resolved, "That the 1st and 2nd FitzWygram prizes for 1939 be awarded respectively to Mr. D. W. B. Taylor, Royal Veterinary College, London, and Miss F. M. Pocock, Royal Veterinary College, London."

Walley Prize.—The Auditors' report was submitted showing that the candidate gaining the highest number of marks in the specified subjects was Cotchin, E. (London), 99 marks.

It was resolved, "That the Walley Memorial Prize for 1939 be awarded to Mr. E. Cotchin, Royal Veterinary College, London."

Miss Aleen Cust Scholarship.—A report was received from Mr. A. T. Phillipson, holder of the Miss Aleen Cust Scholarship, on the work he had carried out during the tenure of the Scholarship, which was approved.

It was resolved, "That the Miss Aleen Cust Scholarship be renewed to Mr. A. T. Phillipson for the year 1939-40."

Jubilee Memorial Prize Regulations.—The Secretary submitted a letter from the Charity Commission stating that the Jubilee Memorial Prize could not, under the present regulations, be awarded to the Cust Scholar, except as the result of an examination in the manner provided by the regulations.

Local Secretaries.—It was resolved to recommend that the following be reappointed Local Secretaries for Examinations at the centres named for the ensuing year: Mr. A. K. Cameron, Edinburgh; Mr. J. M. Mitchell, Glasgow; Mr. R. S. White, Liverpool; and Mr. L. Magee, Dublin.

Resignation of Mr. Bosworth.—A letter of resignation was received from Mr. T. J. Bosworth, Examiner in Pathology and Bacteriology, on his being appointed Professor of Pathology at the Royal Veterinary College.

It was resolved (*a*) "That the resignation be accepted with regret, and that an expression of the thanks of the Council be conveyed to Mr. Bosworth for his valued services as an Examiner

for so many years"; (*b*) "That the question of appointing an interim examiner in the subject of Bacteriology and Pathology be left in the hands of the President."

Examinership in Parasitology.—The Secretary reported that Major Knowles would be unable to act as Examiner in Parasitology at the December examinations owing to military service.

It was resolved, "That the appointment of an interim examiner in Parasitology be left in the hands of the President."

Alien Refugees.—A letter from the Home Secretary was submitted stating that the Secretary of State had decided that foreign veterinary graduates should not as a general rule be allowed to practise in this country and that, therefore, facilities should not ordinarily be authorised for refugees to enter the country for the purpose of obtaining the Diploma. Refugees residing abroad who address enquiries to the College on this subject should be advised that the Council is unable to support their application.

An application from a veterinary surgeon holding the Diploma of Doctor of Veterinary Medicine of Brno was received, but in view of the Home Office decision the application was refused.

Loveday Report.—The Secretary reported that he had ascertained that the Ministry of Agriculture would be unable to take any action on the recommendations of the Loveday Committee until the end of the war.

It was resolved, "That a letter be addressed to the Ministry of Agriculture stating that in the circumstances the Council has decided to refer its promised further communication until after the end of the war."

Revised Curriculum.—The date of the coming into operation of the revised curriculum for the first three years, fixed for October, 1940, was reconsidered.

It was resolved, "That the previous decision on the matter be rescinded and that the present by-laws remain in force until further notice."

Letters from Professors Browne and Nicholson, of the Veterinary College of Ireland, were received, but their consideration was deferred.

Emergency Measures for Examinations.—Animal Management. It was left to the Secretary to arrange for the holding of Examinations in Animal Management, in November.

December Examinations.—The arrangements for the holding of the examinations in December were left in the hands of the President, Chairman, Vice-Chairman, and Secretary.

Schedule of Reserved Occupations.—The Secretary reported that following a conference held at the War Office between representatives of the Army Veterinary Services, the Ministry of Agriculture, the R.C.V.S. and the N.V.M.A. he had addressed a letter to the Ministry of Labour urging the importance in the national interests of the inclusion of all veterinary surgeons over the age of 21, and all veterinary students who had passed the 2nd examination, in the Schedule of Reserved Occupations. A communication had since been received from the Ministry of Labour acceding to the request.

Fellowship by Election.—On the motion of the President it was resolved to recommend, "That the Diploma of Fellow of the College be conferred upon Mr. John Arthur Watt Dollar in recognition of his eminent services to Veterinary Science."

Major Dunkin (Chairman of the Committee) moved the reception and adoption of the Report.

Mr. Livesey seconded the motion.

Professor Buxton: With regard to the two applications under By-law 95, it might be well to make it clear that bacteriology is included in pathology.

Major Dunkin: Yes.

The Report was adopted.

Mr. J. A. W. Dollar's Election as Fellow

The President: Arising out of that report, it falls to my lot to propose formally that Mr. John Arthur Watt Dollar be elected a Fellow of the College in recognition of his eminent services to veterinary science. I do not know that it is at all necessary for me to enlarge upon what I said in committee with regard to Mr. Dollar. As I pointed out then, he has been a very eminent member of the profession for many years. He was a member of this Council from 1894 to 1909, Vice-President of the College in 1896 and President in 1904. He has published many works which have been of very great assistance and value both to practitioners and to students.

I may say, in proposing this motion, that we have heard from Sir John M'Fadyean, who has expressed himself as very delighted at the suggestion that the nomination should be put forward, and who supports it very enthusiastically.

Professor Buxton: I have very much pleasure in seconding that proposal. It is a small tribute to the very valuable work that Mr. Dollar has done for the veterinary profession, much of which in the passing of time has become forgotten.

The motion was carried unanimously.

Registration Committee.

The following report of the meeting of the Registration Committee held on September 27th, was read.

The minutes of the two previous meetings, having been printed and circulated, were taken as read and signed as correct.

Cases Against Non-Members.

N113.—Signed poisons book as "Veterinary Surgeon." A witness is prepared to give evidence of signature. It was resolved that an undertaking to discontinue be asked for.

N130.—Use of title "Veterinary Surgeon." Undertaking given, but now advertises "Medicines are dispensed to the prescription of a Veterinary Surgeon." Explanation given that they are dispensed according to prescriptions published by Sewell & Cousens.

It was resolved that no action be taken.

N135.—Using title "Veterinary Surgeon." Prosecution authorised, but defendant is in prison. He has in the meantime given an unqualified undertaking that he will not in future describe himself as "Veterinary Surgeon" or do any act or other thing which may lead the public to suppose that he is a veterinary surgeon or qualified to practise. An appeal has been made to the President by the Discharged Prisoners

Aid Society to withdraw the summons, in order to give the man a chance to start a new life. The President agreed, subject to the signing of the undertaking. The action of the President was approved.

N196.—Using title "Horse, Cattle and Canine Specialist." Prosecution adjourned by the Justices to October 5th, the defendant being ill in hospital.

N199. — Using title "Veterinary Surgeon, Canine Surgeon." Prosecution authorised. It was resolved that an undertaking be asked for.

N121. — Alleged use of title "Veterinary Surgeon." No further satisfactory evidence was received and the case was struck out.

N124.—(Stepson of deceased member.) Carrying on the practice of the late member under the title "———, M.R.C.V.S. (Exors.), Veterinary Surgeon." The Secretary was instructed to ascertain whether the deceased member's name was still displayed and if so to request its removal.

N202.—Police report stating that this man was describing himself as "Veterinary Surgeon." The Registrar had written demanding a discontinuance of the offence, and a signed undertaking had been received, which was accepted as satisfactory.

N203.—Son of a deceased member carrying on his father's practice. Telephone and other directories have been advised by the Registrar that he is not qualified. The Secretary was directed to request that the notice board of the deceased member be removed.

N204.—Using title "C.N.I." and "Canine Specialist" in connection with the words "Hospital and Clinic." Undertaking received to discontinue the use of the words "C.N.I." and "Hospital and Clinic."

Correspondence.—A letter was received from the N.V.M.A. suggesting that Counsel's opinion should be sought as to the possibility of obtaining an injunction against a firm of medicine vendors for using a misleading title. The N.V.M.A. would be willing to share the expenses. It was resolved that Counsel's opinion on the general question be obtained, and that the offer of the N.V.M.A. to share expenses be accepted with thanks.

Cases Against Members.

2619.—Use of large sign. A letter was received from this member promising to have the sign altered as soon as his financial position will permit. The Secretary was instructed to write urging that the sign should be altered at once.

2514.—Police report of conviction on a charge "drunk and incapable," fined 20s. Letter of apology and regret was submitted appealing for forgiveness and stating that he is firmly resolved never again to take alcohol, even in the smallest quantity. It was resolved that a letter of warning be sent, the member to be informed that this is the last warning and that any repetition of the offence will be dealt with severely.

2624.—Police report: Drunk in charge of car, fined £5, licence suspended for six months. Letter of explanation of the circumstances, with apology and regret. The member has resolved never to touch alcohol when about to drive. It was resolved that a letter of warning be sent.

Correspondence. — Member using title of specialist. A satisfactory undertaking to discontinue title "Equine Specialist" was received.

Applications for Restoration.—An application was received from a member whose name was removed by Council on April 14th, 1939. Applicant states that the practice and appointments are his sole means of livelihood and that the widow of the late practitioner is dependent on them. Statutory declarations in support of the application were submitted.

It was resolved to recommend that the application be acceded to.

The President moved the reception and adoption of the Report. The motion was seconded by Colonel Simpson and carried unanimously.

The Secretary: As there are only 19 members present, it is impossible to take action in Council on the recommendation of the Registration Committee for the restoration of a member's name to the Register. It requires a quorum of at least 24 members of the full Council to be present.

Professor Craig: Cannot this be dealt with as an emergency case?

The Secretary: It is governed by an Act of Parliament, which says that two-thirds of the members of the Council must be *present*.

The President: I do not see that we can take any further steps in the matter.

Parliamentary Committee.

The President and Vice-Chairman submitted the following report:—

The items for the agenda of this committee did not warrant the calling of a meeting in the present emergency.

Parliamentary Bills.—The Riding Establishments Bill has been passed into law.

The usual Experiments on Dogs Bill, and the Docking and Nicking of Horses Bill have been presented, but will probably not be proceeded with.

Witnesses' Allowances.—The Deputation to the Home Office report that they had urged that veterinary surgeons should be placed on the same scale as members of the medical and legal professions in respect of allowances for giving expert evidence. A letter from the Home Office had been received stating that owing to the war the revision of the scale of allowances could not be proceeded with for the time being.

Cruelty to Animals Act.—A reply had been received from the Home Office stating that the views of the Council as to the need for amending Section 11 of the Cruelty to Animals Act, 1876, had been noted.

The President: You have heard the report. Is it approved?

Approval was given on the motion of Mr. Nairn, seconded by Major Dunkin.

Library and Publication Committee.

The following report presented by the President and Vice-Chairman was read:—

The items on the agenda for this committee did not warrant the calling of a meeting under present conditions.

Librarian's Report

The Librarian's report is as follows:—

Loans and Readers.—The Librarian reports that during the last quarter 169 works were sent

out on loan. Of these 116 were lent by post and 53 were borrowed personally. The Library was used by 54 readers and there were about a dozen other visitors.

Special Inquiries.—These included requests for literature dealing with the following subjects:—

Gizzard erosion in chicks and the associated anti-erosion factor.

Chronic bovine haematuria (Haematuria vesicalis).

Aspergillosis.

Acid-fast bacilli (other than tuberculosis bacilli and the bacilli of Johne's disease).

Bacterial content of milk.

Lymphatic system of animals.

Printed Catalogue.—Three more copies sold, thus bringing the total sales up to 260.

Library Space.—This still presents a problem, but rearrangement and the disposal of duplicates is progressing.

PRESENTATIONS.

A number of reports, calendars and yearbooks, reprints and pamphlets [specified in the Report. *Editor*], and the following books:—

Markham's Maisterpeice, 3rd Ed., by Major Hopkin.

Kemper, H.: Die Nahrungs und Genussmittelschädlinge and ihre Bekämpfung.

Lehnert, E.: Ein Beitrage zur Kenntnis der Bluttypen des Pferdes.

Bayly, M. B.: The Schick Inoculation for immunisation against diphtheria.

A further collection of books from the late Henry Gray, M.R.C.V.S.

PURCHASES.

Ministry of Agriculture and Fisheries: Foot-and-mouth disease, special order No. 40, and Advisory Leaflets No. 12 (Mole Draining), No. 29 (Quality of Milk) and No. 76 (Poultry Mites).

Air Raid Precautions Handbook No. 12, A.R.P. for Animals.

National Institute for Research in Dairying: Milk and Nutrition, Parts 2 and 3.

The customary letters of thanks have been sent to the donors.

Register, 1940.—It is recommended that the preparation of the Register of Veterinary Surgeons for 1940 be left in the hands of the Registrar, he being authorised, in consultation with the President, Treasurer and Chairman, to issue an abridged edition if found necessary.

Library Service.—A few of the more valuable books have been stored in the basement of 9, Red Lion Square. There is room in the basement of No. 10, if thought desirable, for the storage of the bulk of the periodicals which form the most valuable part of the library.

Evacuation.—The question of the evacuation of the Library must be considered in connection with the other activities of the office.

The PRESIDENT: Do you agree that the Library shall be temporarily closed, and that if possible provision shall be made for a restricted service, particularly in respect of periodicals?

The Council agreed.

Professor BUXTON: With regard to the Register, could not we avoid the cost of publication during the war simply by issuing an amending slip?

The PRESIDENT: That was in my mind—a slip indicating removals by death or otherwise, and additions.

Professor BUXTON: In that way we could make the present Register last as long as necessary, and simply send out an amending slip each year.

The SECRETARY: May it be left with that hint to the President, Treasurer and Chairman?

The Council agreed.

APPOINTMENT OF LOCAL SECRETARIES

The SECRETARY: The Finance and General Purposes Committee recommend the appointment of the present Local Secretaries in Glasgow, Edinburgh, Liverpool and Dublin.

The PRESIDENT: I put it to you that those reappointments be confirmed.

The Council agreed.

CENTENARY CELEBRATIONS, 1944

The SECRETARY: I have, on your instructions, put on the Agenda the question of the Centenary celebrations in 1944, to make preliminary arrangements.

The PRESIDENT: I take it that you will not want to proceed any further with that for the time being? If Dr. Wooldridge's optimism that things will turn out well very soon is correct, we shall be able to take it up again!

WAR EMERGENCY PLANS

The PRESIDENT: If the Council is willing to leave it to the Executive to take such measures as may be found necessary, we will do what we think best in the circumstances, unless there is some definite instruction that you would like to give.

The question of the preservation or protection of the pictures was considered this morning, and was also left to the Executive. I do not know whether anyone has any special suggestion to make in connection with the preservation of the pictures.

The SECRETARY: In the case of some societies, the glass has been taken away to avoid damage to the pictures by shattering of the glass. It is a question whether, for instance, they should be stored in the basement.

Professor MILLER: These are presumably very valuable, at least, in total. I understood that you had an offer from Major Dunkin to store certain things, and I wondered whether it was possible for him to consider storing the pictures as well.

Major DUNKIN: I did not limit the offer that I made the other day. I do not know about the pictures, but I am quite willing to go into it, and I am sure that my Council would be very willing to aid this College in storing what may be considered property of value to the country. We have a good deal of accommodation which I am told is bombproof. I will consult with

our Secretary to find out exactly what we can do to help in this matter.

The PRESIDENT: Thank you.

Other Matters

The SECRETARY: Under "Other Matters," I should like, with your permission, to read the translation of a letter from an Honorary Associate of the College who transmits his resignation. It seems, therefore, to be a matter which should come before the Council. It is addressed from Munich, dated August 7th, and is from Professor Dr. Kitt. (The letter was read).

The PRESIDENT: The question is whether we should take action to strike his name off the list of Associates of the College or accept his resignation.

Professor BUXTON: I move that the name be deleted from the list.

Major DUNKIN: I second that.

The motion was carried unanimously.

The PRESIDENT: The next question—I do not know whether we should take any decision on it—is the next meeting of the Council. Shall we leave it to the Executive? In the ordinary way, it would be held on January 12th. For some members of the Council there will be no difficulty.

Colonel SIMPSON: There has been reference several times to the "Executive" or the "Executive Committee," and some of us are a little in doubt as to what that consists of. I think that we should really elect an executive committee; the term "executive" seems rather vague. In some cases, the President, Vice-President, Treasurer and Chairman of a committee are called the Executive, but whether that body has executive powers over all Committees or only over the one is something about which I am not clear. What I feel is that we should definitely elect an executive committee to deal with the whole of the affairs of the Council, *i.e.*, it should be an executive committee of the Council. I should think it would be advisable to do what I know that some other institutions, as for instance, town councils and so on, have done by making up an executive committee composed of the Chairmen and Vice-Chairmen of all the different committees, so that a knowledge of the working of all the different committees would be available in one body. If we had such a committee, I think that we should all know where we stood. At the moment, however, this word "executive" has been used a good many times, and I do not know, and I do not think that any one of us knows, exactly what it means. I should like to propose ,therefore, "That an emergency committee of this Council be formed with power to act in their discretion, but, should major matters arise, they should call a meeting of the Council to consider them."

The PRESIDENT: It will be called a War Emergency Executive Committee.

Mr. NAIRN seconded the motion.

Dr. WOOLDRIDGE: May I ask whether the question of the restoration of the name of a member to the Register would be considered a major point? We are all anxious that a meeting of the Council should be held in January, in view of what happened earlier.

Colonel SIMPSON: Certainly. That is a matter which can be dealt with only by the Council, by Act of Parliament.

The PRESIDENT: Is it your wish that such a War Emergency Executive Committee be appointed?

The Council agreed.

The SECRETARY: I understand that the constitution is to be: the President, the Vice-Presidents, the Chairmen and Vice-Chairmen of committees, and the Hon. Treasurer.

The PRESIDENT: I thank you for your attendance, and I hope that the next meeting will be equally comfortable!

The meeting then terminated.

In Parliament

The following are among the questions and answers recorded in the House of Commons recently:—

Meat Control

Colonel BALDWIN-WEBB asked the Chancellor of the Duchy of Lancaster whether he will consider the recasting of the Meat Control Scheme in England; and whether he will circulate in the Official Report a statement as to the sites of slaughterhouses, the area served by each, the names of the meat executive officers and the rates of salary?

Mr. W. S. MORRISON: I can undertake that in any locality in which it is found that the arrangements made under the Meat Control Scheme do not operate satisfactorily, those arrangements will be reconsidered. In view of the large number of selected slaughterhouses, in England and Wales, I will arrange for a list to be placed in the Library of the House of Commons.

Colonel BALDWIN-WEBB: May I ask when that will be, and whether in the scheme which my right hon. Friend now envisages he will permit the continuance of slaughtering at Wellington and other towns in Shropshire which have been put out by his Department?

Mr. MORRISON: The list will be available as soon as possible. I am reconsidering the second matter mentioned by my hon. and gallant Friend.

Sir HERBERT WILLIAMS: Does this mean that Smithfield is shortly to be reopened?

Mr. MORRISON: No, Sir.

Mr. J. MORGAN asked the Chancellor of the Duchy of Lancaster what quantity of meat has been handled by the ten meat depôts in the outer London distributing areas since they were established; and what staffs are maintained, including their numbers?

Mr. MORRISON: I have made inquiries from the London Wholesale Meat Supply Association and have been informed that the quantity of meat

handled in the ten meat emergency depôts in outer London distributing areas since they were established at the outbreak of war amounts to 3,773 tons.

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PIGS

Lieut.-Colonel HENEAGE asked the Chancellor of the Duchy of Lancaster whether, in the interests of pig production and taking into account the difficulty of sending pigs to slaughter-houses in distant towns, he will continue the present practice of allowing pigs to be slaughtered in farms and cottages?

Mr. W. S. MORRISON: No action has yet been taken to prevent the slaughter of pigs by farmers and cottagers. I will bear my hon. Friend's suggestion in mind in connection with any future control of the slaughtering of livestock.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Nov. 6th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

Nov. 9th.—Commencing date of R.C.V.S. Animal Management Examination.

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SUPPLEMENTARY SUPPLIES OF PETROLEUM FOR VETERINARY SURGEONS

In connection with the erroneous announcement (made through a misunderstanding) in our issue of October 21st, that veterinary surgeons would be granted from 75 to 100 per cent. of their normal requirements of petrol, it is now clear that the position was that in addition to the basic ration, Divisional Petroleum Officers might allow a supplementary ration up to 75 to 100 per cent.

At the meeting with the Mines Department to which we made reference in our last issue, the Association's representatives were given to understand that the Department were anxious to ascertain the results of the working of the existing liaison system, with the present discretionary powers of the Divisional Petroleum Officers. If, however, a member finds that, despite the efforts of his liaison officer, his supplies are still insufficient for his essential needs, he should apply, through his liaison officer, to this office (36, Gordon Square, W.C.1), when individual cases will be taken up immediately with the Mines Department, who have undertaken to investigate such complaints.

THE POULTRY INDUSTRY IN WAR-TIME

ADVISORY COMMITTEE APPOINTED

The appointment is announced of a committee to advise the Minister of Agriculture on matters affecting the interests of the poultry industry in war-time. Members of the committee are Mr. A. Arbuthnot, Mr. C. G. Belfield, Captain S. Clift, Dr. Charles Crowther, Mr. P. A. Francis, Mr. Tom Newman, Mr. Frank Snowden, Mr. Stanley Street-Porter, and Mr. Thomas Turney. Mr. Francis, the Ministry's Poultry Commissioner, will be the chairman of the committee.

The National Veterinary Medical Association has noted with surprise and regret the absence of veterinary representation on the committee and has approached the Minister with a view to remedying what it regards as a most unfortunate omission.

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EMERGENCY ANIMAL HOSPITAL AT ROYAL MEWS

The King has consented to allow part of the mews at Buckingham Palace to be used, under the National A.R.P. Animals Committee, as an emergency hospital for horses, ponies, and donkeys that may be injured in air raids in the Westminster area.

Mr. D. E. C. Danby will be the veterinary surgeon in charge, and will be assisted by volunteers from the royal stables and inspectors of the R.S.P.C.A., of which Society his Majesty is chief patron.

The hospital will carry on its work in conjunction with the Westminster City Council.

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R.C.V.S. OBITUARY

BEILBY, Richard Edwin, Wilmington House, Hailsham, Sussex, Major late R.A.V.C. (T.F.). Graduated Edinburgh, May 21st, 1894. Died October 19th, 1939; aged 66 years.

RUNCIMAN, William, Station Road, Ely, Cambs. Graduated Edinburgh, December 18th, 1924. Died October 27th, 1939; aged 44 years.

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DR. G. D. LANDER

In our issue of next week we hope to publish a memoir of Dr. George D. Lander, Professor of Chemistry at the Royal Veterinary College from 1903 to 1920, and Examiner in Chemistry and Physics for the Royal College of Veterinary Surgeons. Dr. Lander, as we announced with deep regret in our last issue, passed away at Ashford, Kent, on October 25th.

PERSONAL

Marriage.—Thomson—Bowett.—On October 26th, 1939, at St. Anne's Church, Worksop, by the Ven. H. V. Turner, Archdeacon of Nottingham, Peter Downie Thomson, M.R.C.V.S., son of Mr. and Mrs. T. Thomson, West Park, Philpstoun, West Lothian, to Joan Scorer, second daughter of Mr. T. Bowett, M.R.C.V.S., and Mrs. Bowett, Manor Lodge Farm, Worksop, Notts.

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To be Called to the Bar.—His fellow veterinarians will heartily congratulate Mr. Thomas Arnold Reynolds Chipperfield, B.Sc. (Lond.), M.R.C.V.S., of Browneaves, Cranleigh, Surrey, on passing his Final Examination for Call to the Bar at Gray's Inn. Mr. Chipperfield thus adds his name to the now considerable number of members of the profession who have supplemented the veterinary by the legal qualification.

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BULL LICENSING BACK AGAIN

The Ministry of Information, in its weekly news service, makes reference as follows to the restoration of bull licensing as a means of maintaining the standard of our herds: "Few agricultural measures have done more good in a short time than the Licensing of Bulls Act, introduced in England and Wales just over five years ago. It was temporarily suspended on September 7th, but Lord Denham was able to announce in the House of Lords on Tuesday, October 17th, that it is now in operation again.

"The agricultural community have heard this with satisfaction, for they have been quick to appreciate the advantage of a measure that maintains the standard of the herds of the whole country. Some of the strongest opponents to the introduction of this scheme have become its keenest supporters since they have seen it at work. About 45,000 applications a year have been coming in recently for licences, and in 1938 less than 14 per cent. of these bulls were rejected. Naturally the farmer does a little selection on his own account before he asks for a licence.

"Normally application should be made when the bull is nine months old, ten months being the licensing age. But the Ministry invites owners whose bulls have reached ten months in the period since September 7th, when licensing was temporarily suspended, to send their applications in now."

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UNREGISTERED I.F.S. MILK VENDORS

The danger to the health of the public who purchase milk from unregistered milk vendors was stressed at a meeting of the Connaught Veterinary Medical Association in Claremorris. It was pointed out that as a result of such people not being registered the work of inspectors investigating the conditions under which the milk is produced was rendered very difficult. People who purchased milk from unregistered vendors had no guarantee that their supply was produced under clean conditions and from healthy animals.

LEGAL NOTES

Animals at Night.—Two cases came before the courts recently for contravention of the lighting restrictions in having cattle on the road without lights. These were the first of their kind. In Scotland the Sheriff dismissed accused with an admonition, and in Wales a nominal fine of 5s. was imposed. The regulations require that when four or more animals are together on the road a light must be shown in front of the animals and another behind; when fewer than four animals, it is only necessary to have a light in front.

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CENTRAL VETERINARY RESEARCH INSTITUTE FOR EAST AFRICA

In connection with the above project, dealt with in the editorial and other columns of this issue, we are glad to have the opportunity of publishing the following notes from an article by Mr. R. Daubney, C.M.G., O.B.E., M.Sc., M.R.C.V.S., Director of Veterinary Services, Kenya, contributed to the September 7th issue of *East Africa and Rhodesia.*

In June last the Congress of East African Governors approved the tentative programme of work outlined by the Standing Veterinary Research Committee for the proposed Central Veterinary Research Institute at Kabete and decided that the Institute should begin operations on September 1st, 1939.

Suggestions for the closer co-ordination of veterinary research services in the East African Territories have been under consideration for a great many years. Largely owing to the initiative of the East African Governors Conference—and with the support of the Conferences on Veterinary Research held at Kabete in 1934 and 1936, and the Standing Veterinary Research Committee for East Africa—these plans have at last come to maturity. Much has already been done in effecting a closer co-ordination of veterinary work, and research in particular, through the agency of the Standing Veterinary Research Committee, which has held regular meetings since 1934. Existing resources have been pooled as far as possible and overlapping and unnecessary duplication of work have been avoided through a free interchange of information regarding veterinary problems in the territories and research projected. There has been an allocation of problems for research to the different laboratories in the three main territories, Kenya, Uganda and Tanganyika. In fact everything possible has been done to make the most of exiguous resources and to guard against any loss of efficiency through overlapping or diffusion of effort.

These periodic consultations and the frequent examination of the problem served only to make still more evident the need for a strengthening of the veterinary research organisation of the territories through the establishment of a large central veterinary research institute to serve East Africa as a whole.

It was clear that the same purpose could not be achieved by the alternative method of enlarging the staffs of the existing territorial research laboratories through the addition here and there of a general veterinary research

worker with a view to work on some specific disease that for the time being was alarming the farming public whether native or European—or causing embarrassment to Government.

The Conference on Co-ordination of Veterinary Research, 1934, approved of the principle of centralisation of veterinary research for East Africa and expressed the view that the provision of a central research station would lead to greater efficiency in veterinary research and more rapid progress in animal industry in the territories of this group. The Conference recognised also that Kabete would provide the best centre for the establishment of such an institute.

The existing veterinary research laboratory at Kabete is the largest and oldest of the three territorial laboratories. It has been gradually built up by Kenya at an estimated capital expenditure exceeding £40,000. Situated some eight miles from Nairobi at an altitude of 6,200 feet, the laboratory has roughly 1,240 acres of excellent grazing land with a small proportion of arable. With a mean annual rainfall of about 42 inches the climate is equable and suitable for Europeans. The main laboratory building contains altogether about 45 rooms and there is an ample range of outdoor brick buildings for the accommodation of large and small animals. The present staff consists of a director, who is also Director of Veterinary Services, a deputy-director (laboratory services), one senior veterinary research officer, five veterinary research officers, one veterinary entomologist and one bacteriologist and a librarian. There are in addition seven laboratory assistants, three junior laboratory assistants, a farm superintendent, a storekeeper, a mechanic and three laboratory students or learners. The laboratory is also the headquarters of the Department of Veterinary Services, the extra staff including a deputy-director (field services), one veterinary officer, and the usual office establishment — which services the laboratory as well as the headquarters—consisting of an office superintendent, six European clerks and one clerical learner. The actual recurrent expenditure on the research services in 1938 was £26,852, and biological products to the value of £9,495 were manufactured during the year. Actual collections of revenue in 1938 amounted to £30,956—£9,416 from the sale of laboratory products and £20,409 from fees for veterinary inoculations carried out by the field division with materials prepared at the laboratory.

One could not reasonably expect the Government of Kenya to agree to surrender this establishment on any terms to a Central Research Authority; neither, on the other hand, did it seem altogether wise to establish a large central research institute which would be entirely divorced from contact with the everyday problems of animal health as they are encountered in the routine diagnostic work of a state laboratory; nor was it desirable to expend large capital sums on the building of a new laboratory, if some alternative course was open. The arrangement eventually reached is a compromise, in that the central research unit is grafted on to the existing Kenya laboratory, but there are advantages to both sides. The combination of the two staffs, that of Kenya with ten professional research officers at the laboratory, and that of the Central Research Institute with five, will provide a team of 15 research workers accommodated at one large institute, enjoying in their work all the advantages that are to be derived from membership of the staff of a central institute. Under such conditions, workers are encouraged by daily contact and discussion with their colleagues, they are constantly subjected to the impact of other views and ideas, and stimulated to make greater efforts. Most research workers in veterinary science to-day are specialists, and the greater the degree of specialisation the more they need the support of other specialist workers in related fields, support which can best be derived from daily contact with their fellow workers. The direction of such a team demands a wide knowledge of research methods and of the problems of the territories served by the Institute, but it is an advantage also for the director to be in touch with the economic problems of Government administration. The control of a large institute such as that provided, presents its own special problems in administration and general organisation, such an establishment is not easily built up *de novo*, and there is much to be gained from being able to step into a going concern.

These points in favour of the arrangement finally adopted have all been given due weight in the many discussions that have taken place on the Standing Veterinary Research Committee and East African Governors Conference, and the proposals were fully supported by the Colonial Advisory Council of Agriculture and Animal Health.

A programme of research drawn up by the Standing Veterinary Research Committee for the new team of workers includes fundamental research on the filtrable viruses, with special reference to the rinderpest problem in Africa; a helminthological survey of the three territories, with special reference to the pathogenic parasites of sheep; studies on Theileria species, *i.e.*, the parasites responsible for East Coast fever and allied diseases; investigation into the action of dipping fluids, and an investigation of deficiency diseases of livestock in East Africa. These items are intended to supplement the research already being carried on at Kabete, with a view to increasing its usefulness to the countries of the East African group. It is proposed to appoint five additional workers comprising one general research worker with special qualifications for work on virus diseases, one general veterinary research worker, one biochemist and two zoologists, one of whom would be a helminthologist and the other a protozoologist.

The Colonial Development Fund has made a free grant of £5,430 capital expenditure, £4,680 of which is to be spent on the building of five houses to accommodate the additional staff and the remaining £750 on internal alterations to the laboratory and the equipment of further rooms.

The recurrent expenditure of the Institute is estimated to amount to £5,400 per annum, and this sum is to be provided by yearly contributions from Uganda, Tanganyika and Kenya of £1,800 each. Although Nyasaland and Northern Rhodesia are both members of the Conference of East African Governors and send representatives to the Standing Veterinary Research Committee, they are not being asked at present to contribute to the funds of the Central Institute.

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Programme of Research

We reproduce the following programme of work to be carried out at the central research

station, as approved at a meeting of the Standing Veterinary Research Committee of the Conference of Governors of British East Africa Territories, held at Kabete on February 6th, 1939:—

(*a*) *Virus Diseases.*—Fundamental research on the virus of rinderpest, and such comparative studies of other viruses as can conveniently be fitted into the programme, rinderpest being regarded always as the chief object of study.

(*b*) *Dipping.*—Research on the action of dipping fluids.

(*c*) *Helminths of Sheep.*—Helminthological survey in all the territories, carried out through the agency of natives trained at Kabete. The helminthologist should visit the other territories and should undertake any investigations that may be necessary of pathologic conditions caused by heiminth infections; in particular assistance should be given in the discovery and demonstration of intermediary hosts. Life-history studies to be undertaken wherever necessary with a view to the formulation of appropriate prophylactic measures.

(*d*) *Investigation of Deficiency Diseases in East Africa.*—A biochemist would be employed partly to assist in this investigation and partly on the virus studies. No work on nutrition is proposed, since the laboratory at Mpwapwa is now largely concerned with general problems of nutrition.

The report proceeds to state that there was some discussion as to whether the team should, at the moment, undertake research in subjects related to general animal health. It was felt that at present the staff should confine their activities to research on disease, but the following resolution was passed: "The Committee wishes to record that although the present programme has of necessity been confined to research on specific animal diseases, the Committee is primarily concerned with the basic problems of animal health in relation to environment. In due course it is hoped that the Central Research Institute may be able to devote part at least of its funds to the investigation of problems of this nature."

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SIGNIFICANCE OF THE GIANT CELL

In a recent issue of *The Lancet* (June 7th, 1939) Hadfield has described a condition of regional ileitis in man which is characterised histologically by lymphadenoid hyperplasia with non-caseating systems of giant cells of the Langhans type in the submucosa and regional lymph nodes. An editorial article in the same issue discusses the significance of these findings.

The absence of caseation, necrosis or gross tissue destruction in the lesions together with the failure to find tubercle bacilli would appear to exclude tuberculosis. Certain features suggest a resemblance to a disease which has long puzzled pathologists—Boeck's sarcoidosis. The histological picture described by Hadfield closely resembles that experimentally produced in tissues by the inoculation of dead tubercle bacilli or of certain portions of the lipoid fraction of the organisms. It is suggested that the condition of regional ileitis may be due to the passage of dead tubercle bacilli or their products from the intestinal tract into the submucosa and lymph-adenoid tissue.

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PASTEUR

"The letters and addresses of Pasteur, which form the last volume of his collected works,* reveal the inner workings of his mind more than his actual experiments," states the *Lancet* in a recent issue. "He did not possess the quality popularly described as brilliance. He mistrusted mental facility and subtlety, and despised irony and scepticism. In teaching and administration, as well as in his scientific investigations, he admits that he owed his success to that infinite capacity for taking pains which has sometimes been described as the chief attribute of genius. His lectures and addresses are a constant paean in praise of will, effort and enthusiasm, the driving forces of his life. He warned his students against considering only the practical value of scientific observations, aptly quoting Franklin—'what is the use of a new-born babe?' 'Theoretical knowledge,' he said, 'can foster the spirit of invention, but you must submit every new idea to strict experimental control. . . . The critical faculty alone cannot produce ideas but without it no scientific work can be elaborated.' Teaching he considered essential to the scientific worker, 'as it constantly obliged him to review the relationship of his own particular branch to other sciences.'

"He attributed to Lavoisier a greater influence on modern chemistry than either of his contemporaries Scheele or Priestley, since Lavoisier methodically planned his experiments. 'In the field of observation,' Pasteur was wont to say, 'luck will only favour those minds which are duly prepared and ready.' Side by side with the shy investigator humbly deprecating his work and modestly admitting, when acknowledging international honours, 'le sentiment de mon insuffisance,' stalked a vastly different personality, an aggressive fighter impatient of opposition. His friends warned him against the implacable rigour of his dialectic, trying at the same time to restrain his ardour and to allay his fears that the cause of science might be imperilled through the virulent attacks of obscure tract-writers. Not content with the already large number of his adversaries, he created new ones. When his work on fermentation led him to investigate the nature of infectious diseases (incidentally proving the correctness of Robert Boyle's assertion of two centuries earlier that the study of fermentation might throw more light on morbid processes), he encountered bitter opposition. 'Do you know why I shall fight you to a finish?' he wrote to Bastian in 1877, 'it is because you support the view, which in my opinion is fatal to medicine, that all disease arises spontaneously within man.' The physicians of that period hardly relished the incursions of an experimental chemist into clinical science, even Trousseau and Pidoux in their 'Treatise on Therapeutics' of 1855 alluding to 'the chemists' ambition to explain phenomena which do not even belong to the realm of chemical science.'

*Oeuvres de Pasteur. Collected by Prof. Pasteur Valléry-Radot. Paris: Masson et Cie. Vol. 7. 1939. Pp. 666. Frs.200.

"For sheer piquancy, the juxtaposition of two such different types as those of Pasteur and Renan is perhaps unsurpassed. In 1882 Pasteur had been elected to the seat of the late Littré (of dictionary fame) at the French Academy. On these occasions the élite of Paris society foregathered to hear the panegyric of the departed immortal by the newly elected one. Pasteur did not hesitate to criticise his late friend Littré for following the positivism of Auguste Comte. 'This doctrine,' said Pasteur, 'ignores the most positive of all notions, that of the infinite. While not denying the existence of God and the immortality of the soul, it dismisses any thought about these because science is unable to prove their existence.' Ernest Renan in his reply trod more cautiously. With delightful tact and finesse, the renowned religious critic bade Pasteur welcome to this assembly: 'You may appreciate meeting here representatives of diverse schools of thought, playwrights, novelists, poets, historians and philosophers. None of us, you may rest assured, Monsieur, will ever be able to shake your unalterable faith in your experiments. . . . Perhaps some day, you will admit there was some good in the prudent abstentions of Littré . . . you may learn from us, that there are such things as doubts and subtle shades of opinion. Perhaps you will allow us to come to you with our doubts and with our hesitations, giving us in return, your certainty, your assurance, and above all, Monsieur, your inestimable genius and the glory of your discoveries.' Pasteur quoted from Bossuet's De la connaissance de Dieu et de soi-même: 'le plus grand dérèglement de l'esprit est de croire les choses, parce que l'on veut qu'elles soient.'"

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GROWTH OF THE MANDIBLE IN THE PIG

Writing to *Nature* (September 23rd), H. A. Harris, of the Anatomy School, University of Cambridge, states: "Growth of the mandible has been a controversial problem since the days of John Hunter, notwithstanding that he, John Tomes the elder and George Humphry in turn performed crucial experiments which showed that growth took place at the posterior border of the mandible and absorption at the anterior border, thus providing room for the eruption of the developing permanent molars.

"Radiographic examination of a 'runt,' the small starveling pig, shows evidence of arrested growth in the skeleton. In the scapula the successive checks to growth are displayed by lines of arrested growth, along which bony deposition is well marked. The lines are best seen at the vertebral border of the scapula, particularly at the postero-inferior angle. These lines of arrested growth have been studied in detail by me* in the long bones of children.

"In the mandible of this pig [the note is illustrated radiographically] the lines of arrested growth are well marked at the posterior border, at the insertion of the temporal muscle on the coronoid process, and at the superior and posterior border of the condyle. These are the sites of alternating active growth and arrested growth.

"Lines of arrested growth are absent from the anterior border of the mandible and coronoid notch. These are the sites of active absorption of bone.

"The third molar, at present buried in the mandible, will erupt later by reason of the upward movement of the crown consequent upon the growth of the roots, but it will also be uncovered and laid bare by the absorption of bone at the anterior border of the mandible.

"This radiographic proof of the accuracy of John Hunter's description of the growth of the mandible is in accord with the recent descriptions of madder-fed pigs by Brash.†

"The radiograph of the mandible also shows the danger, in the animal or person who is not fully grown, of making a forecast as to whether an unerupted wisdom tooth (third molar) will or will not erupt satisfactorily at a later date. Until growth in the mandible ceases at 21 to 25 years of age in the human, female or male, there is little justification for interference with a third molar which gives rise to no active symptoms. On the other hand, the continued refinement of the face and reduction in the size of the mandible in passing from ancient man to modern man suggests that the wisdom tooth in the future will give rise to more anomalies than in the past."

*Harris, H. A., "Bone Growth in Health and Disease" (Oxford University Press, 1933).

†Brash, J. C., "Growth of the Jaws, Normal and Abnormal, in Health and Disease" (Dental Board of the United Kingdom, London, 1924).

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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PURCHASE OF REMOUNTS

To the Editor of the Veterinary Record

Sir,—In to-day's *Record*, among the questions and answers in the House of Commons mention is made of the recent purchasing of remounts in Yorkshire. As one engaged in that work I venture to state that conditions are not quite so bad as your report would indicate. Perhaps I have been lucky in being attached to purchasing officers who knew their work and being in a country where there are plenty of good useful horses to choose from, but I can say we had no difficulty in getting our number of as useful saddle horses as it was possible to find in any country.

Having been at the same work in the last war I consider we found better quality animals and at almost as cheap a rate as we did in 1914. Of course, on this occasion we were allowed more time and the number needed was very much less. I have never yet seen the necessity of commandeering. Owners are very good to work with at such times. Occasionally an owner—and generally it is a lady owner—will burst forth and tell you he or she would rather shoot them than let them go to the Army, but just a reminder as to how they stand usually serves the purpose at once. The reception given to the buyer to-day by the hunting men is very similar to that accorded him by the cabmen in 1914: it is usually, "these are our horses; take what you like and do the best you can for us." Members

in the House seem to forget that, immediately war broke out, all hunters, regardless of cost, and probably almost four-fifths of all racehorses were reduced to Army value in one day. Any experienced buyer knows that a racing stable is the last place to go to find a good Army remount—just as rarely does a horse that has been raced make a good hunter. The dealer's yard tests the purchaser's ability as well as that of his acting veterinary surgeon—not so markedly from the danger of getting a bad horse as from introducing disease into a batch of newly purchased horses. Veterinary surgeons on this work must close their eyes to many unsoundnesses in a good-class animal. Also they must give the good animal the benefit of the doubt in determining the age, but with a bad animal they cannot be too strict.

Much grumbling can be heard from a North Country yeomanry camp about their horses, not so much in respect of their build and quality but about their manners. This looks much as if it is the riders that are to blame, not the horses: horsemen cannot be made in a few weeks nor yet in a few years—the young cavalryman is rare to-day.

Yours faithfully,

WM. A. CAMPBELL.

Veterinary Infirmary,
Boroughbridge,
York.
October 28th, 1939.

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Meat rationing, it is announced, will not be applied to haggis, which according to the Ministry of Food schedule, is classified as "butcher's offal." War's war, and a concession should be welcomed, but there's some will be thinking that it's a gey high price in pride that they'll be asking for it.—*Glasgow Herald.*

Advertiser's Announcement

"GRAGRIP SHOEING"

The leading article in this journal a week ago, under the heading "The Present Prospects of the Commercial Horse," certainly provides, as the subject deserves, much food for thought amongst the profession that owes so much, though more particularly in the past, to thriving horse practices.

While many instances of horses holding up traffic occur, this is often because of their inability to stop—start—and to stand up and draw their heavy loads on skating-rink roads (especially, but necessarily, constructed for motors), and it is such instances that have given protagonists of the petrol engine the supreme opportunity of promoting agitations in the Public Press, to drive their only competitor off the streets and roads in London and the Provinces.

Horses that can move freely and safely on present-day roads, cannot truthfully be considered "nuisances," as from time immemorial they have had an English prescriptive right to roads, which can never, with justice, be withdrawn.

More than once, attention has been drawn in these columns to the method of shoeing recommended by Government, after exhaustive practical trials in twenty-two counties—on all types of horses and roads—during a twelve-month, at the time so many complaints from horse-owners became acute and insistent, when modern water-tight road surfacings were universally introduced.

In the resultant Govenrment White Paper, this proved successful method of overcoming the slippery road problem by suitable shoeing, was described as "Gragrip Shoeing," with the flexible bridge fittings. This method of shoeing is also fully described in the Second Edition of "Diseases of the Horse's Foot," by H. Caulton Reeks, F.R.C.V.S., and cited and recommended therein as a "preventive and check to many diseases to which the foot is subject"—and this as a corollary, apart from its anti-slipping qualities!

The testimony of two past Presidents of the National Veterinary Medical Association of Great Britain and Ireland, acknowledged experts both in Stable Management and Shoeing, verifying from long practical experience the effectiveness and economy of "Gragrip Shoeing" (which evidence may be read in the announcement columns of this issue), certainly justifies strong advocacy from others, upon whom reliance is placed to assist horses and their owners over the greatest bugbear to-day, namely, the *slippery* and *hard roads* upon which ordinary shoeing—no matter how well carried out and intentioned—is not helpful.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT OF 1937 (PART IV)

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 16th Oct., 1939	18	27	4	105	—	—	9	258	129
Corresponding period in									
1938	19	29	1	66	—	—	1	55	43
1937	23	25	2	178	1	1	8	35	18
1936	17	23	3	275	2	2	2	92	63
Total 1st January to 15th Oct., 1939	602	684	73	8,243	32	72	178	2,178	1,461
Corresponding period in									
1938	647	1,024	163	20,699	44	74	126	585	446
1937	553	662	22	5,097	100	138	147	834	515
1936	355	421	8	723	98	240	169	1,552	1,103

NOTE.—The figures for the current year are approximate only.

§ Excluding outbreaks in Army Horses.